

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit 1753 : PATENT APPLICATION  
Examiner R. McDonald :  
In re application of : **METHOD AND APPARATUS FOR**  
FISCHIONE ET AL. : **PREPARING SPECIMENS FOR**  
Serial No.: 10/633,130 : **MICROSCOPY**  
Filed: August 1, 2003 :  
:

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Pittsburgh, Pennsylvania

August 5, 2010

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Applicants have carefully reviewed and considered the Final Office Action mailed on May 6, 2010, and the cited references. In response to the Final Office Action, Applicants respectfully request review prior to the filing of an Appeal Brief.

## **Claim Rejections – 35 USC § 112, First Paragraph**

The Examiner rejected claims 1, 3-7, 16-21, 24-31, 58-65, 68, 69, 73-75, 118, 121, 124-137 and 139-151 under 35 U.S.C. § 112, first paragraph for lack of written description.

### **REMARKS**

The Examiner states that there is no support for “selective spatial isolation of said means for plasma etching said specimen and said specimen from said plasma generator, said means for removing material and said means for coating said specimen when said means for plasma etching said specimen is operational.” Specifically, the Examiner inquires as to what element isolates the means for etching from each of the devices. *See Office Action dated May 6, 2010, page 2.* Applicant previously drew the Examiner’s attention to portions of the specification which discloses several examples of the isolation of the etching means from each of the other devices. *See Applicant’s response dated February 8, 2010, page 23.* For example, the specification also describes moveable shutters or baffles positioned in front of viewing window 200 and magnetron sputtering head 105 to “further protect from deposition of foreign material when not in use.” *See Specification page 28, lines 11-12.*

Figure 1 also shows a transfer rod 30 which accommodates one or more sub-mounted specimens 3. Transfer rod 30 moves back and forth between *two separate* chambers-plasma chamber 15 and etching and coating chamber 30-through vacuum valve 25. *See Specification page 18, line 21 to page 19, line 1.* The function of transfer rod 30 is described as having the ability to be “...retracted with transfer rod 30 through vacuum valve 25 and vacuum valve 25 is closed.” Emphasis added. *See Specification page 29, lines 11-17.*

Figure 6 illustrates an apparatus including two vacuum vessels 610 and 620. The port for specimen introduction and removal, the plasma generator and RIE electrode are located in vessel 610, while the ion gun and sputter target are located in vessel 620. The two vessels are joined by a shared valve 630, which serves to *isolate* and/or connect the two vessels. *See Specification page 34, lines 5-15.* The specification also describes an additional embodiment where the valve 630 is replaced by a moveable baffle that, when closed, blocks the line-of-sight travel between vessels 610 and 620.

Applicant respectfully asserts that specification provides sufficient description of the portion of the claimed apparatus responsible for isolating the means for etching from the other

devices. The claims therefore satisfy the written description requirement of 35 U.S.C. § 112, first paragraph.

### **Claim Rejections – 35 USC § 103(a)**

The Examiner rejected claims 1, 3-7, 16-21, 24-31, 58-65, 68, 69, 73-75, 118, 120, 121, 124-137, 139-151 and 158-164 under 35 U.S.C. § 103(a) as being obvious over various combinations of Siebert, U.S. Pat. No. 4,858,556, Moslehi, U.S. Pat. No. 6,051,113, Mahler, U.S. Pat. No. 4,595,483, Miyoshi, U.S. Pat. No. 6,325,857, Ameen, et al., U.S. Pat. No. 6,143,128, Chang, et al., U.S. Pat. No. 6,434,814, Mitro, et al., U.S. Pat. No. 5,922,179, Kobayashi, et al., U.S. Pat. No. 5,340,460, Holland, U.S. Pat. No. 5,311,725, Nomura, et al., U.S. Pat. No. 6,641,703, Chang, et al., U.S. Pat. No. 6,434,814, Hurwitt, U.S. Pat. No. 3,756,939, and Baldwin, et al., U.S. Pat. No. 6,419,802.

### **REMARKS**

The claimed invention requires that the plasma etching functionality be *isolated* from the other component functionalities of the device *when said means for plasma etching said specimen is operational*. This spatial limitation requires that the highly corrosive etching hardware be separated physically from the other functional devices. Applicant contends that this is not taught nor suggested in the prior art. Although Siebert does identify a shutter which rotates to expose the specimen to the appropriate operative hardware, and which is stated to provide additional substrate protection, no further disclosure is made. Fig. 7 merely identifies a standalone, line of sight shield between the various operative hardware and the specimen. Moreover, the testing or detection devices of the Siebert reference are still contained *within the chamber with the specimen*. The shutter is not shown to spatially separate the specimen and plasma etching mechanism from the other operative components. The Examiner relies on a single, nonspecific reference to other devices, “the sources 18 may be any of a number of different types of sources. . .” (col. 12, lines 24-25) as a basis for linking *three* additional references to arguably find all of the elements of the claimed invention. *See Office Action dated May 6, 2010, pages 3-4.* Siebert merely discloses the potential use of other sources and it contains no further disclosure. Figure 2 identifies a shutter that is merely a movable shade to temporarily block the emissions of the source from the specimen.

Miyoshi discloses a chamber which is utilized to prepare a reactive material for exposure to the specimen which is sealed by a movable shutter. A shutter is therefore utilized to *encapsulate the reactive materials*, not shield the specimen or other fixtures in the chamber. The shutter of Miyoshi *would not* function to isolate one means from another so that the different processes do not affect the functionalities of the other components. *The shutter 4 is utilized to shield the catalyster (source) from the operation of the cleaner which is utilized to clean the interior of the chamber and specimen stage when the device is not in operational use to perform any etching, cleaning or coating of a specimen.* Neither Siebert nor Miyoshi teaches or suggests that a shutter may be utilized to shield different reactive components or fixtures during the use of other source components within a closed vacuum chamber during the operation of a source on the specimen.

A rote combination of the teachings of Sieber, Moslehi, Mahler and Miyoshi, or in fact any of the other cited references, would not result in the claimed invention. None of these references recognizes the need to isolate the plasma etching function during operational etching of the specimen with particularity, nor do they recognize any need for separation of the functions. To stuff all of the identified features in a box does not yield a useful device. Even placing the Miyoshi reaction chamber into a common vacuum chamber would not yield the claimed device, as the device segregates the plasma etching function *while operational with respect to the substrate*, and not as a preparatory or maintenance step.

Applicants asserts that the Examiner's combination of *thirteen* references in forming the obviousness rejections suggests improper hindsight. As stated by the Examiner, some hindsight is necessary in any obviousness evaluation. To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction--an illogical and inappropriate process by which to determine patentability. *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985). *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1571 (Fed. Cir. 1996).

Applicant respectfully asserts that none of the prior art references, either alone or in combination, teaches or suggests a shutter to shield different reactive components or fixtures

during the use of other source components during the operation of a source on the specimen. Withdrawal of the rejection is respectfully requested.

### **CONCLUSION**

Applicants respectfully request that the application is in condition for allowance in light of the remarks made above. Reconsideration is respectfully requested at an early date.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to the previously authorized deposit account.

Respectfully submitted,

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